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MODERN MEDICINE OF THE ENGLISH-SPEAKING RACE.

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The complex fabric of modern civilization is surrounded by an upheaval of thought unparalleled in variety and unequalled in extent of movement, at any period of man's history. Ancient ideas give way at almost every point to the assertions, speculations, and discoveries of the day. These spring up with so great rapidity that there is scarcely time to estimate their import, or to weigh their value. We watch wave following wave on the ocean shore, and we notice how, after a momentary existence, each is overwhelmed by the one that follows, and both are soon merged in the past. The bystander, for his short time, notes fresh masses forming in constant succession, advancing, breaking. The new seem like the old in form. Yet no two are exactly the same, save only in this, that they advance, recede, and perish.

The course of human thought is not wholly unlike these inanimate forces thus ceaselessly brought into play. Yet human thought has another quality connected indissolubly with it, and illustrated by the cosmical actions operating in our planet. Human thought, like life in this globe of ours, has in it an element of steady progress and of development which does not accompany the restless movements of the ocean tide.

These advance and recede, to advance again; but the changes they effect, great though they be when looked at through uncounted ages, are changes limited strictly in degree and strictly in kind. In life on the globe, evolution, if neither uniform nor steady, has been at all events progressive, if tested by any rational test of progress. Human thought, like life in the earth, has advanced in most directions, even though it have in some gone back.

As the material organisms, those marvellous machines which make mental action in this world possible, have, on the whole, become more perfect through prehistoric periods, so the mass of human knowledge, since we have record of the human race, has become greater, purer, truer. With all our errors, with all our blindness, and with all our backslidings, there is steadfast yearning after truth, and an ever reaching forwards toward good. Our conception of the relation we hold to the whole order of things is more clear, and is, perhaps, more true. The light of keen criticism is turned with full blaze on every quarter, and from every side. Though the variously colored rays impart not seldom confusion more bewildering than darkness, in the end, the "lumen siccum," the pure white light for the most part prevails. It then at once illuminates, defines, and warms.

In nothing are these analogies more true than in the history of medicine. Nor can a better illustration be found in that history than in the undertaking to which these few words are to form an introduction. Would that it had fallen to a stronger hand to pen them.

It is proposed to issue a quarterly journal of purely scientific and practical medicine, which is to be, in certain directions, a common vehicle of medical thought for the English-speaking race. It is a great project, and one worthy of success, though open to criticism for its daring. Into the prospects of such an undertaking, looked at from a commercial or the publisher's point of view, this is not the place to enter. That, no doubt, has been fully considered. Nor is it here, either, that should be fully discussed all the objections that may be raised from the scientific and literary side. The criticisms that may be reasonably advanced should, however, be frankly acknowledged. They are few, and to these the answer is simple. Although the existing number of medical journals, to be counted by several hundreds, is so great, yet there is no journal with the aim of the present. The sole questions, therefore, in this direction are as to the wisdom of the aim.

First. The aim being admitted to be good, it cannot be attained. To this objection a short reply may be given in the form of an axiom. The conditions of the English-speaking race are such, geographically and politically, and the means of intercommunication are so unceasing, that it is an imperative duty, in the interest of mankind, to collect periodically into suitable form the information which they furnish, as being most important, and progressively important, for the promotion of public and personal health throughout the world.

Secondly. That the aim is too narrow. Be it so. The aim is wide enough. It is indeed true, that an attempt to formulate certain data bearing on the diseases of the whole human race has been already begun, and that the successful inauguration of a Committee for the International Collective Investigation of Disease, last year at Copenhagen, will produce, it is to be hoped, a permanent effect on investigation and on literature. This quarterly journal will in no sense interfere with that great undertaking. It will neither forestall it, nor lag behind it. It will aid it, on a different line. It will make use of its results and it will further its objects. How this is, will be seen more fully at a later stage of the following observations.

We have to call to mind that the art of medicine began, without doubt, from the simple desire to obtain and to afford relief in diseases, and other injuries. To staunch a wound, to unite, if possible, a fractured limb, to quench a burning thirst, were objects manifestly to be attained. Natural love led the family or the friends to fulfil this service. Those most apt would then, in similar conditions, be the most sought for again. The nurse would quickly found a profession, which would attract admiration and earn gratitude. Women and men would alike follow it. The arts of Surgery and Medicine, however rudely, would thus be established; and, conjointly or separately, would gain their hold as integral parts of the tribal organization. So beneficent and noble a work would need the appearance on earth of a gifted soul like Hippocrates, to establish a definite art, or mystery, and to suggest a future and possible science. This once begun would never cease. All the virtues and all the vices of an established guild would be rapidly stereotyped. Truth and falsehood, honesty and pretension, learning and ignorance, true observation and mistaken inferences, authority and subservience, factious opinions, misleading self-assertion, feebly opposed by moderation, which is seldom popular, would all take their place. Rapidly would the most intricate, the most amazing, the most subtle of all created things, the human frame in health and in disease, become the centre of traditional beliefs, some true and noble, some false and degrading. And as the human race became developed, or the world more thickly inhabited by the human family, and the interchange of ideas more regular and more facile, sound knowledge bearing on the physical needs of man, on his physical education, and on the modes of perfecting its stamina, and procuring his euthanasia at the time of his departure, would be handed on from one to another people, accompanied by the natural and inevitable result of national prejudice, and of faulty generalization from misapplied and mistaken similarities.

And in truth this, to speak roughly, is the history of medicine in the world up to the present century. This century is the century of criticism and of experiment. It is, therefore, the age of transition. In the course of its criticism, and its experiments, and in its transition, it has had to devise new methods. By its new methods it has acquired new powers. Two of the chiefest of these powers are: first, a multitudinous host of individual skilled observers, flooding the world with precise individual observations; and, secondly, the organization of associations for the direction of inquiry, the sifting the wheat from the tares, in the vast harvest gathered by individual reapers, and the reducing of isolated data into principles and laws.

It has been wisely said that there are times in a man's life when he should ask, where he is, whence he comes, whither he is going. The same severe questioning may be, and should be, put to themselves by most nations, and with reference to many kinds of subject matter. If we put it to Medicine, it is not hard to answer. Prophecy being rash, the third question, which is of the most moment, whither it is going, demands the most careful reply, and may for the moment be deferred. To the second question a reply has already in fact been given. Medicine is in possession of a heterogeneous mass of real and of supposed knowledge, accumulated at the lowest computation, during 3500 years, in which the principles and conclusions of great men have floated in a sea of statements and traditions, unparalleled except by the accumulated follies of false religions.

To the first, "Where we are," the reply is that, as has also been said, "We are in a new era of precise observation, of experiment, and of criticism, with all their advantages and their dangers."

And so the reply to the third is, that we are going whither the balance of these three great factors of scientific progress may lead us.

Whither this may be, it is, upon the whole, not far to seek.

For 1st. What is the true function of medicine as we now view it?

2d. How is this function to be best carried on? that is to say, what are the factors upon which the science and art of medicine, at the present age of the world, depend?

1st. As was remarked just now, the origin of medicine was the benevolent desire to relieve suffering; and so it was synonymous with the "healing art." Its function has become far wider. Whatever be the duty of individuals, medical art and science collectively now aim, as a whole: 1st, at the preservation of health; 2d, at the averting disease from individuals and from nations; 3d, at rearing healthy progeny for the family and the State, by probing the laws of inheritance; and, 4th, by procuring legislation effectual to these several ends.

It claims, therefore, a right to a voice in moral education as well as physical training; it holds a duty in relation to the diminution of vice for the sake not only of its self-destroying victims, but more for the sake of the innocents whom they ignorantly slay. In short, medical science, openly or unseen, pervades and influences our private and public life from the kitchen to the camp and the fleet; from the cottage to the palace. It sends its messages to the school, its dictates to municipal organizations. It performs these duties equally with its infinite services in hospitals to the sick; in refuges for the insane, and in the homes of the convalescents.

If we ask by what agencies medicine purposes to qualify itself to perform openly or silently such complicated preventive and preservative, as well as curative, functions, the reply which we receive is some such as this: "By appropriating all the confirmed conclusions of the biological sciences which bear on the health and the inheritance of the human race, however descended, and under whatever climatic and local conditions situate."

A moment's reflection only is needed to show the vastness of the inquiry contained in this statement. It affirms that which cannot be reasonably contradicted, that the complete science of the prevention of disease, and of the preservation of health in man, will include a knowledge of all conditions in which any branch of the human family is placed, and of the relations of individuals of the family, by descent and inheritance one to the other, to a common origin, or a diverse stock. In short, it will be based on the conclusions of a progressive morphology, physiology, and embryology, comprising, as they do, the history of all things that in our planet have life. It will, moreover, study the relation of life to all matter in our world which does not possess the properties called living, and the *modus operandi* of all cosmical forces in the two kinds of matter, respectively, the forces, that is, that belong to all matter, and the combination of them, whatever that may be, which operates in living things, and which for distinction, and as the lawyers say, without prejudice, is now called in the place of the old vital principle, metabolism. When through the perfected knowledge of physics and chemistry, and of climates in their application to living organisms, and when through the teachings of pathological evolution now looming in the distance, we know the conditions of health, then, not till then, will the ideal standard, which is to test what is "not health," have been attained.

Morphology, physiology, embryology, attempt to lay down the laws of the normal organism, vegetable or animal, of every degree of perfection, wherever situated, at whatever period of the world existent, however evolved. These sciences being in no sense arts, are still intimately connected with the great subject of disease, or pathology. This is intermediate between the three pure organic sciences, and the art of therapeutics which rests upon both, and contributes factors to both. And first as to pathology in its relations to this paper. If the borders of the three organic sciences just named are as extensive as has been said, those of pathology cannot be narrower. For there are the disorders of all plants, and all animals, and all races of man, and departures from the normal health standard as numerous as the "species," perhaps as numerous as the individuals, or the families to which they belong. They are, moreover, indeed as numerous as the organs, and the textures of each, without reckoning the general diseases which are not confined to organs and textures, but affect the whole organism. As the subject opens up it would seem to bewilder from its extent and complexity. For this bewilderment the remedy will presently appear. The fact remains, and it can be no other.

As there is a similarity more or less great, more or less divergent, in the life conditions of all living organisms on our planet, both in respect of their past history and their present normal mechanism, function, and origin, so must there be between their several non-health tendencies and acquired abnormalities. Although happily for us, these are not all intercommunicable, it has been proved, as is known to every one, that between certain diseases of man and of other animals there is not only a casual and accidental, but an actual and necessary relation, as in some of the entozoa, and in a not necessary, but a possible, way, in tubercle and other disorders. Nor is this all. For as there is this correlation between the possible disorders of certain organisms one with the other, so the correlation probably does not exist equally in every part of the globe, but only in some parts, that is, the infectivity depending on climate or on localized microbes, is not everywhere the same.

Another factor has to be added, and a striking one, viz., that diseases have a history of time, as well as of place, and that they have appeared and disappeared, at varying periods, some at very long, and some at short intervals; and they have remained in varying degrees of intensity for many centuries in a manner more or less constant, of which the most notable illustrations may be found in cholera and in leprosy, both in respect of time and of place.

And lastly, there is the vast pathological question of inheritance of disease, whether in man or in animals. Only two need be alluded to in illustration, epilepsy and syphilis. The former has been elucidated by the experiments of Brown-Séquard, and the latter by innumerable observations and inquiries in almost every country for the last four centuries, with regard to this ancient scourge of humanity. The mere mention of these four, cholera, leprosy, epilepsy, and syphilis, raises in every well-informed mind an almost overwhelming cloud of thought in the direction of causes, disasters, and remedies, operating through thousands of years on the human race. The attempts to form a science of the diseases of mankind on a really scientific basis, have received great impulse from the *Handbook of Historical and Geographical Pathology*, prepared, with marvellous labor and philosophical insight, by Professor Hirsch, of Berlin. This work, accessible now to all English readers, has once for all laid a foundation on which all the vast accumulating mass of pathological observation in the world of medical inquiry may be systematically and scientifically classified and arranged.

The third great department of scientific medicine to which reference should here be made, that of therapeutics, belongs in a greater degree to the category of an art than either physiology (in its three subdivisions) or pathology; but not for this reason is therapeutics either less definite or less in need of scientific handling. It is sometimes supposed that therapeutics is mainly empirical. There can be no greater error. It is, in fact, based either on positive science, or it is experimental. It rests either on certain knowledge definitely ascertained, and precisely used, in which case it has known results which can be foretold, or it rests on experiment, in which case the experimenter, as in a purely scientific experiment, extorts from nature an answer valuable according to the knowledge and skill which he brings to bear on the individual case. Therapeutics, like physiology and like pathology, concerns itself in these days with the whole range of disease in organized nature. Now it deals with the vegetable world, as in the case of the potato disease, or the vine disease; now with lower animal forms, as in the diseases of the silkworm, the battle-ground and great victory of Pasteur. Now it experiments on the domestic animals useful to man, as in the anthrax of sheep, a further triumph of that great observer; or it studies the treatment and prevention of the plague in the bovine races. In all these several cases, therapeutics finds entangled in its meshes thousands upon thousands of observations and statements, resting on authority of every degree, whether of high value or of utter worthlessness. It were an error to suppose that we have reached a time when none but scientifically tested assertions find their way into the current literature of therapeutics. This is not the time or place for discussing this matter; yet, by the way, it must in truth be said that, notwithstanding the brilliant discovery of certain true remedies, and of invaluable palliatives of modern times (such as quinine, chloroform, and iodine); and notwithstanding the precise correlation established in many cases between the lessons of normal physiological experiment, and therapeutical action in abnormal states, there has been no period in medical history in which a greater number of reckless assertions are yearly sent broadcast into the world. To name instances would here be out of place. They will occur to every reader.

The observations and records of physiology and of pathology, though in different degrees, have been derived in large measure from organisms other than man, by means of experiment. The most extensive, and by far the most accurate teachings of therapeutics, come from observation and treatment of man, chiefly in the great hospitals of the Christian era. The astonishing acumen of Hippocrates, Galen, Aretæus, and a few more of the ancients, must not be forgotten. But the want of anatomical precision, and of the results of microscopic research, make the records even of Morgagni, comparatively, of small value. The observations of trained observers—trained, that is, in the purely scientific methods of physiology—before proceeding to the study of disease in the highest organisms, will produce, and are producing, results by the bedside of equal therapeutical value; perhaps, indeed, of greater truth than those of the experimenter on animals. Morbid action is a great physiological teacher. It has to be observed that, in the study of human therapeutics, a new element is introduced. This element shall be expressed in the words of one of the most attractive clinical teachers of this century.

> "Diseases are not abstractions; they are modes of acting, different from the natural and healthy modes—modes of disorganizing, modes of suffering, and modes of dying; and there must be a living, moving, sentient body for all this.
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> "This body must be your study and your continual care—your active, willing, earnest care. Nothing must make you shrink from it. In its weakness and infirmities, in the dishonors of its corruption, you must still value it, still stay by it, to mark its hunger and thirst, its sleeping and waking, its heat and its cold, to hear its complaints, to register its groans.
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> "And is it possible to feel an interest in all this? Aye, indeed, it is; a greater, far greater, interest than ever painter or sculptor took in the form and beauties of its health.
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> "Whence comes this interest? At first, perhaps, it seldom comes naturally; a mere sense of duty must engender it; and still, for awhile, a mere sense of duty must keep it alive. Presently the quick, curious, restless spirit of science enlivens it, and then it becomes an excitement, and then a pleasure, and then the deliberate choice of the mind.
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> "When the interest of attending the sick has reached this point, there arises from it, or has already arisen, a ready discernment of diseases, and a skill in the use of remedies. And the skill may exalt the interest, and the interest may improve the skill, until, in the process of time, experience forms the consummate practitioner.
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> "But does the interest of attending the sick necessarily stop here? The question may seem strange. If it has led to the readiest discernment and the highest skill, and to form the consummate practitioner, why need it go further?
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> "But what if humanity should warm it? Then this interest, this excitement, this intellectual pleasure, is exalted into a principle and invested with a moral motive, and passes into the heart. What if it be carried still further? What if religion should animate it? Why, then, happy, indeed, is that man whose mind, whose moral nature, and whose spiritual being, are all harmoniously engaged in the daily business of his life? with whom the same act has become his own happiness, a dispensation of mercy to his fellow creatures, and a worship of God.
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> "Such a man any of you may be; but you must begin by learning to stand by the sick-bed and make it your delight."

So, in 1836, said Latham, no mean disciple of Galen, who nearly seventeen hundred years before wrote at the end of his great treatise "*Περι χρειας των ἐν ἀνθρωπου σωματι μοριων*," that all his anatomical facts and studies were as hymns sung before the gods.

The temper which is thus inculcated belongs not to him only who truly seeks the alleviation of human suffering, physical or mental, but to him who, against his nature, is often forced to wrest the secrets of life from living animals lower than men, for their sake and the sake of the whole human race.

The generalities here dimly portrayed have to be considered in their practical relation to the conditions and progress of medicine among English-speaking peoples. This relation is obvious enough, and is twofold: first, in respect of the subject itself; and, second, in respect of the persons who affect the conditions and retard or promote the progress.

As to the subject little more should be said. The subject is coextensive with every branch of the human family, affects every individual in it, of every age, of every color, and every creed, every government. It concerns men of science, however wide their pursuits or limited their objects in physics, in chemistry, in biology. It concerns all who, though considering scientific study to be neither their duty nor their forte, are devoted to the practical, beneficent, and benevolent charge of the feeble and the sick, of the young and the old. These practical philanthropists are interested in the progress of all true, in the elimination of all spurious statements, from preventive or curative medicine. Every real discovery, every simplification of principle, every blow to specious but unnecessary fancy in this direction, promotes, to some extent, the education of the world. This being so with the quality of the subject, it remains to say a word on the special opportunities which lie within the reach of the English-speaking people for aiding it; and, secondly, on the means actually now employed.

The opportunities are of two kinds, those which occur to official persons and those which are enjoyed by private practitioners. Whether official persons have done all that can be done toward a science of medicine admits of question. But in every part of the English-speaking world they have begun, and in some places have advanced in this century in an unprecedented way. Official documents, accessible to all, emanating from England, Scotland, and Ireland, from India and the Colonies, have thrown a flood of light on the etiology and the prevalence of disease, and have promoted steadily progressive legislation. The United States have taken up the same gigantic work in every department of biology, normal and abnormal, with the rare opportunities of their vast territory, and their various peoples. A glance at the eleventh volume of the *Tenth Census of the United States* will show the success as well as the difficulty of obtaining correct data as to the sanitary condition and vital statistics of the States. But the work is in the hands of Dr. Billings, and that is a guarantee for whatever industry, genius, and philosophic acumen can accomplish in this direction. This statement, so brief, tells that official records are accumulating in one language, as to the health conditions of three hundred millions of people, in almost every parallel of latitude between the terrible belts of perpetual ice that environ either pole; on nearly every isothermal line; by mountain and valley; among people civilized and uncivilized, of almost every race and inheritance, men of every occupation and trade, living in every condition of luxury or of want; of every religion; practised in every act of virtue, and steeped in every form of vice. So that these records alone will presently form the basis of a science of comparative national health.

But besides these great official sources of knowledge, are the far more numerous data, which, in truth, supply them. Witness, for instance, the causes of death, in vital statistics. When Dr. Billings writes that "'teces,' 'colory in phantum,' 'colvia fontine,' 'hasphmar,' 'struck in on the air-cells' are reported by 'physicians,' it is evidently unsafe to lay too much stress on the scientific accuracy of diagnosis by the same reporter in other cases, even although the spelling may be more nearly correct."

The corollary from this illustration is that every endeavor should be made by public and private means to secure good general education for the medical students of the future. Useless will be the progress of "physiology and pathology and therapeutics" to those districts which are served by "physicians" ignorant of them. On the medical education of the future we may look with not only hope but confidence.

This rude survey must now be brought to a close.

Some apology is offered to science for the assumption that there is room for a scientific journal with the apparent restriction to one language and one human stock. Science has no restriction and a universal brotherhood; but science has her votaries everywhere, and every language can contribute its share. The present endeavor is to offer to those who seek it a means of hearing a message from English-speaking people, which, apart from politics of every kind, may gather results profitable to medicine, learnt from types of every climate of the globe, from very many races of the most diverse origin, and from every occupation and every condition in which the human family is engaged. The error lies, if anywhere, in the greatness of the attempt. An apology is offered to the International Collective Investigating Committee, if, indeed, an apology be in place. Such an attempt as this to coördinate acquired truths from so wide a range as the English-speaking people can but aid, as has been said before, the profound and detailed inquiries conducted by that body. In no possible way can it rival, surpass, or check its precise labors.

The end, indeed, which one may propose to such a work is this—to bring together at regular intervals the thoughts and active criticism of men, who, bound by the tie of one common language, are still more closely linked by the love of truth applied to perfecting the bodily nature of man. That bodily nature is the casket which contains the spirit, by which, and which alone, man is separated from the innumerable living cotenants of this planet, so complex, so wonderful, yet so petty, in the complete order of the universe. If England should ask whither she is being led, she may reply that her speech, embracing the States of America and the Australian continent, is called upon more and more to guide races of every color, and every state of evolution. The States alone have almost every climate and every kind of seaboard, and every topographical condition for habitation, and for produce, and every occupation for man.

Therefore, let it be said, that since there are so many races bound together by the same speech to further the cause of human progress, since there are in this brotherhood so many who hold divers forms of true religion, and some, too, who look on all religion as a byword and reproach, it is well they all agree in this faith, that to relieve the suffering and prevent the decay of masses of mankind form a part of all true religion—the religion of universal peace and goodwill toward men.

THE MITRAL CARDIAC MURMURS.

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The study of the mitral cardiac murmurs at the present time is of importance to every medical practitioner, as well as of interest to those whose attention is especially directed to the diseases of the heart. The purpose of this article is a reviewal of the existing knowledge of these murmurs, and an inquiry meets us at the threshold as to the number of them. How many murmurs, the seat of their production being at the mitral valve or orifice, are to be reckoned as mitral murmurs? After the description of the mitral regurgitant murmur by Elliottson, in 1830, for more than a decade of years this was the only mitral murmur recognized as such. Another murmur was added in 1843, by Fauvel, who first described distinctly the mitral direct murmur, named by him and known at the present time as the mitral presystolic murmur. The recognition of this murmur, as a presystolic murmur, has made its way very slowly, a fact remarkable in view of its distinctive characters. Even now, after more than forty years, it is by many not distinguished clinically from the mitral regurgitant murmur. It was described by the writer of this article in his treatise on the diseases of the heart, in